

CLAIMS

What is claimed is:

1. A system comprising:

a finite state machine having a plurality of states interconnected through a plurality of events, wherein certain states and events in said plurality are implemented in software and other states and events in said plurality are implemented in hardware; and

a scheduler communicatively coupled to said finite state machine and having one or more parameters defining scheduled operations to be performed by said scheduler, wherein said finite state machine is configured to select one or more of said parameters to be used by said scheduler upon transition by said finite state machine from a first state to a second state.

2. The system as in claim 1 further comprising a look-up table unit for storing a look-up table.

3. The system as in claim 2 wherein said look-up table unit comprises lookup table logic having a current state value, one or more event values associated with said current state value, and one or more next state values associated with said current state value and each of said event values.

4. The system as in claim 2 wherein said look-up table look-up table logic further comprises one or more predefined actions.

5. The system as in claim 4 wherein one of said actions is transmission of a data packet.

6. The system as in claim 4 further comprising decode logic for decoding an action signal generated responsive to selection of one of said predefined actions.

7. The system as in claim 1 wherein said scheduler comprises parameter registers for storing said one or more parameters.

8. The system as in claim 7 wherein said parameter registers are configured to receive new parameters loaded from a host processor environment.

9. The system as in claim 8 wherein said parameter registers are configured to receive a selection signal from said finite state machine, said selection signal identifying which of said one or more parameters to use when performing said scheduled operations.

10. The system as in claim 9 further comprising a period counter configured to identify a beginning and an end of a period, said period being defined by a period parameter.

11. The system as in claim 10 further comprising a slot counter configured to identify a beginning and an end of each timeslot within said period and to transmit a signal identifying each timeslot to a look-up table unit.

12. The system as in claim 11 wherein said look-up table unit is comprised of a lookup table including one or more predefined actions, said actions being triggered by said signal transmitted by said slot counter.

13. A method comprising:

defining a protocol stack based on a plurality of states, events and actions, said events and actions defining transitions between each of said states; and partitioning said plurality of states, events and action between hardware and software, based on a minimum defined performance criterion for said protocol stack.

14. The method as in claim 13 wherein said states, events and actions are configured using a look-up table.

15. The method as in claim 13 wherein transitions between states requiring a relatively higher response time are partitioned in hardware.

16. The method as in claim 13 wherein said protocol stack is a time-division duplexing ("TDD") wireless protocol.

17. The method as in claim 16 wherein said TDD wireless protocol is a Bluetooth protocol.

18. The method as in claim 13 further comprising:

moving said protocol stack from a first host environment to a second host environment,

wherein said states, events and actions are repartitioned between hardware and software in said second host environment based on said second host environment's host processor capabilities.

19. The method as in claim 13 wherein said hardware is an application-specific integrated circuit and said software is executed in a host processor environment.

20. A system comprising:

finite state machine means having a plurality of states interconnected through a plurality of events, wherein certain states and events in said plurality are implemented in software and other states and events in said plurality are implemented in hardware; and

scheduler means communicatively coupled to said finite state machine means and having one or more parameters defining scheduled operations to be performed by said scheduler, wherein said finite state machine means is configured to select one or more of said parameters to be used by said scheduler upon transition by said finite state machine means from a first state to a second state.

21. The system as in claim 20 further comprising look-up table means for storing a look-up table.

22. The system as in claim 21 wherein said look-up table means comprises lookup table logic having a current state value, one or more event values associated with said current state value, and one or more next state values associated with said current state value and each of said event values.

23. The system as in claim 21 wherein said look-up table means further comprises one or more predefined actions.

24. The system as in claim 23 wherein one of said actions is transmission of a data packet.

25. The system as in claim 20 further comprising decode means for decoding an action signal generated responsive to selection of one of said predefined actions.

26. The system as in claim 20 wherein said scheduler means comprises parameter registers for storing said one or more parameters.

27. The system as in claim 26 wherein said parameter registers are configured to receive new parameters loaded from a host processor environment.

28. The system as in claim 27 wherein said parameter registers are configured to receive a selection signal from said finite state machine means, said selection signal identifying which of said one or more parameters to use when performing said scheduled operations.

29. The system as in claim 28 further comprising period counter means configured to identify a beginning and an end of a period, said period being defined by a period parameter.

30. The system as in claim 29 further comprising slot counter means configured to identify a beginning and an end of each timeslot within said period and to transmit a signal identifying each timeslot to a look-up table unit.

31. The system as in claim 30 wherein said look-up table means is comprised of a lookup table including one or more predefined actions, said actions being triggered by said signal transmitted by said slot counter means.

TCW 44-2004-0004